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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/164,388	09/30/1998	HON WAH CHIN	CISCPO54	6603

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EXAMINER
PRIETO, BEATRIZ

ART UNIT	PAPER NUMBER
2142	

DATE MAILED: 05/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 07-01)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _13 March 2003_ .

2a) ☐ This action is **FINAL.**   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under _Ex parte Quayle_, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-43 and 45-54_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-43 and 45-54_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

    If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____ .

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

    a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .

4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: .

DETAILED ACTION

1.   This communication is in response to amendment filed 03/13/03, claims 1-43 and 45-54 remain pending.

2.   The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3.   Claim 1, 10, 19, 20, 28, and 37 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. In this case, it is not clear where in the written description is an explicit description of simultaneously storing each of the plurality of entries of the outbound queue.

4.   Quotation of 35 U.S.C. §103(a) which forms the basis for all obviousness rejections set forth in this Office action may be found in previous office action.

5.   Claims 1-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erimli et. al. (Erimli) U.S. Patent No. 6,487,212 in view of Barucchi et. al. (Barucchi) 5,392,401.

Regarding claims 1, Erimli teaches features substantially as claimed, a system/method including;

        a switch (12) (router) for routing data packets (col 4/lines 21-24, 29-32, routing: col 5/lines 27-29), the router including;

        an inbound (receiving) port and an outbound (sending) port (col 2/lines 52-57, col 5/lines 11-20, col 6/lines 10-16), a memory (col 5/lines 32-40), and a processor (CPU) (col 7/lines 21-23);

        the receiving interface (18) (controller) being adapted for receiving a (inbound) packet at the receiving (inbound) port (16) (col 5/lines 11-23), the method comprising:

        providing a plurality of input (inbound) queues (52) for the inbound port (col 6/lines 1-16, col 7/lines 35-41);

        receiving an inbound packet at the inbound port (col 7/lines 35-41);

storing the received (inbound) packet in the selected one of the plurality of inbound queues (52) (col 6/lines 10-16); and

determining when one of the plurality of inbound queues storing a plurality of packets is ready to be moved to an entry in an outbound queue (col 22/lines 37-54, col 23/lines 24-35, 54-56) associated with the outbound port (col 10/lines 46-56, col 11/lines 6-9, 20-23);

the outbound queue being capable of storing a reference (col 14/lines 14-20) to a plurality of inbound queues (col 8/lines 1-8, 16-22, col 22/lines 37-41) individually (col 9/lines 28-37, 61-63, pointer as an entry) stored in a different one of a plurality of entries in the outbound queue (col 23/lines 22-27);

conventionally each of the plurality of inbound queues storing a plurality of packets to be separately transmitted (read) (col 10/lines 10-11);

although prior art teaches classifying one of the pluralities of inbound queues according to a priority (sorting criteria) and classifying the received packets according to a (destination or type criteria) packet sorting criteria; it does not explicitly teach selecting one of the plurality of inbound queues according to packet sorting criteria;

Barucchi teaches a system/method related to a switching device for routing data packets (abstract), teaching a routing device (col 3/lines 42-48) configured for selecting one of a plurality of inbound queue according to a packet destination criteria (packet sorting criteria) (prior art: col 1/lines 25-37, select inbound queue according to data packet destination, col 5/lines 4-22, 51-54, select inbound queue according to the data packet source, col 7/lines 31-34, Fig. 2, selection means 32) storing the inbound packet in the selected one of the plurality of the inbound queue (i.e. allocating "classifying or sorting");

It would have been obvious to one ordinary skilled in the art at the time the invention was made to include Barucchi's teaches for classifying the received packet with a selected one of the plurality of inbound queues according to a packet sorting criteria for storing the inbound packet in the selected one of the plurality of inbound queues and transferring to received packet to an outbound queue associated with the outbound port according to said packet sorting criteria for its destination, as taught by Barucchi. Motivation would be to optimize the performance of a switching device for simultaneously routing data from outbound queues to their respective destinations according to selected inbound and outbound queues.

Regarding claim 2, raising (asserting) an indication (interrupt) when it is determined that one of the plurality of inbound queues is ready to be moved to an outbound queue (Erimli: col 24/lines 59-col 25/line 22).

Regarding claim 3, sorting the inbound packet into one of the plurality of inbound queues according to the packet sorting data from data obtained from the inbound packet associated with said selected criteria (Barucchi: col 1/lines 25-37, col 5/lines 4-22, 51-54, col 7/lines 31-34, Fig. 2).

Regarding claim 4, a transferring the selected one of the plurality of inbound queues storing a plurality of packets to the outbound queue associated with the outbound port, outbound queue including a reference to the selected inbound queue storing a plurality of packets is stored in a single one of a plurality of entries in the outbound queue (Erimli: moving queue: col 22/lines 37-54, col 23/lines 24-35, 54-56, outbound queue/port: col 10/lines 46-56, col 11/lines 6-14, 20-23, pointer: col 14/lines 14-20, inbound queues: col 8/lines 1-8, 16-22, col 22/lines 37-41: individually entry: col 9/lines 28-37, 61-63, pointer as an entry stored in a different one of a plurality of entries in the outbound queue col 23/lines 22-27).

Regarding claim 5, obtaining an available packet buffer from a free pool of available packet buffers (free buffer pool 104: col 7/lines 23-28); placing the inbound packet in the packet buffer for storing the packet buffer in the inbound queue (Erimli: col 7/lines 52-65).

Regarding claim 6, determining whether a number of packets in one of the plurality of inbound queues exceeds a maximum number of packets (Erimli: col 24/lines 24-32).

Regarding claim 7, determining whether a number of bytes in one of the plurality of inbound queues exceeds a maximum number of bytes (Erimli: col 24/lines 24-32).

Regarding claim 8, determining whether a free pool of available memory has been depleted (Erimli: col 21/lines 19-23).

Regarding claim 9, determining whether a maximum time limit has been exceeded (Erimli: col 15/lines 1-4).

Regarding claim 10, this claim comprises features substantially the same as those discussed on claim 1, same rationale of rejection is applicable, and further limitations include:

an outbound controller for the router being adapted for forwarding packets at the outbound port (Erimli: outbound interface (18) (controller) and output port (16): col 6/lines 11-19);

transmit (outbound) queue (54) associated with the outbound port (Erimli: outbound queue (54): col 6/line 10-16, outbound queue (74), col 7/lines 25-26, output port, col 5/lines 19-20, 26-33, outbound queue of the outbound port: col 22/lines 325-41);

an outbound queue storing a plurality of inbound queues (Erimli: col 2/lines 21-28, 52-62);

receiving a indication or signal (notification) to handle an inbound queue being ready to be moved to an outbound queue (Erimli: col 24/lines 59-col 25/line 22);

move (transferring) the inbound queue storing a plurality of packets to an entry in the outbound queue associated with the outbound port such that a reference to the inbound queue storing a plurality of packets is stored in one of a plurality of entries in the outbound queue (Erimli: inbound move to outbound queue: col 22/lines 37-54, col 23/lines 24-35, 54-56, col 10/lines 46-56, col 11/lines 6-9, 20-23, outbound queue storing pointer, col 14/lines 14-20, col 8/lines 1-8, 16-22, col 22/lines 37-41, individually col 9/lines 28-37, 61-63, pointer as an entry stored in a different one of a plurality of entries in the outbound queue col 23/lines 22-27); and

repeating the receiving and transferring steps for the plurality of inbound queues (Erimli: col 9/lines 61-63, col 10/lines 10-11, repeat transfer next: col 19/lines 8-10).

Regarding claim 11, receiving the signal or indication (notification) from a processor to move the inbound queue (Erimli: col 24/lines 59-col 25/line 22).

Regarding claim 12 transmitting packets stored in the outbound queue (Erimli: inbound move to outbound queue: col 22/lines 37-54, col 23/lines 24-35, 54-56, col 10/lines 46-56, col 11/lines 6-9, 20-23, outbound queue storing pointer, col 14/lines 14-20, col 8/lines 1-8, 16-22, col 22/lines 37-41, individually col 9/lines 28-37, 61-63.

Regarding claim 13, selectively discarding packets stored in the outbound queue (Erimli: discarding: col 12/lines 15-31, discarded: col 1/lines 56-61).

Regarding claim 14, obtaining a next one of the plurality of inbound queues stored in the outbound queue (Erimli: transmitting selected packets stored in the next one of the plurality of inbound queues (col 19/lines 8-10) and releasing memory associated with the next one of the plurality of inbound queues (Erimli: col 19/lines 10-19).

Regarding claim 15, storing the released memory in a free pool of available packet buffers (Erimli: release: col 25/lines 7-12, return buffer to the free pool: col 17/lines 41-50).

Regarding claim 16, forming a new inbound queue to be used by an inbound controller (Erimli: clear queue entries: col 17/lines 14-20, release inbound queue: col 8/lines 39-45).

Regarding claim 17, forming a queue to be used by the outbound controller during bi-directional Operation (Erimli: col 15/lines 50-col 16/line 2).

Regarding claim 18, this claim comprises limitation(s) discussed on claim 4, same rationale of rejection is applicable, further limitation includes, ascertaining a priority of the inbound queue (Erimli: input queue: priority level: col 2/lines 21-28).

Regarding claim 19, this claim comprises combined features discussed on claims 1 and 19, same rationale of rejection is applicable.

Regarding claim 20, this claim comprises apparatuses associated with and/or to perform each of the functions of the method claims 1 and 10, same rationale of rejection is applicable.

Regarding claims 21-24, these claims comprise the apparatuses (e.g. modules) adapted to perform each of the functions of the method claims 1-2, 5, and 7 respectively, same rationale of rejection is applicable.

Regarding claim 25, determining whether a number of bytes in one of the plurality of inbound queues exceed a maximum number of bytes (Erimli: col 25/lines 1-2, col 23/lines 24-40).

Regarding claims 26-27, these claims comprise the apparatuses (e.g. modules) adapted to perform each of the functions of the method claims 8 and 9 respectively, same rationale of rejection is applicable

Regarding claim 28, this claim comprise the apparatuses (e.g. modules) adapted to perform each of the functions of the method claims 1-2, 10, 19, and apparatus claim 20, same rationale of rejection is applicable.

Regarding claim 29, this claim is substantially the same as claims 2 & 10-11, wherein the signal or indication from processor is further called "notification", same rationale of rejection is applicable.

Regarding claims 30-36, these claims comprise the apparatuses (e.g. modules) adapted to perform each functions of the method claims 12-18 respectively, same rationale of rejection is applicable.

Regarding claim 37, this claim comprises the interconnected apparatuses (e.g. modules) adapted to perform each of the functions of the method claims 1, 10, 19, and apparatus claim 20, same rationale of rejection is applicable.

Regarding claim 38, this claim comprises the interconnected apparatuses (e.g. modules) adapted to perform each of the functions of the method claims 1, 10, 19, and apparatus claim 20, same rationale of rejection is applicable.

Regarding claim 39, this claim comprises the interconnected apparatuses (e.g. modules) adapted to perform each of the functions of the method claims 1, 10, 19, and apparatus claim 20, same rationale of rejection is applicable.

Regarding claim 40, releasing selected packet buffers associated with packets stored at the one of the plurality of outbound queues (Erimli: col 15/lines 50-col 16/line 2).

Regarding claim 41, free pool of available packet buffers and releasing the selected packet buffers into the free pool (Erimli: col 15/line 50-col 16/line 2).

Regarding claim 42, providing a new inbound queue of selected one of the plurality of inbound queues according to packet sorting criteria for the inbound controller use or reuse (Erimli: clear queue entries: col 17/lines 14-20, release inbound queue: col 8/lines 39-45, Barucchi: selecting one of a plurality of inbound queue col 1/lines 25-37, select inbound queue according to data packet destination, col 5/lines 4-22, 51-54).

6.   Claims 43, and 45-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Erimli et. al. (Erimli) U.S. Patent No. 6,487,212 in view of Barucchi et. al. (Barucchi) 5,392,401 in further view of Clark U.S. Patent No. 5,177,480

Regarding claim 43, this claim comprises substantially the same features discussed on the method claims 1, 10, 19, and the apparatus claims 20, 28, 37-38, same rationale of rejection is applicable, further however, the prior art does not explicitly teach encrypting the one of the plurality of inbound queues to provide an encrypted inbound queue to the outbound controller for transmission;

Clark discusses as prior art encryption mechanisms, which encrypt an entire buffer (queue or set data packets) (col 1/lines 34-col 2/line 10);

It would have been obvious to one ordinary skilled in the art at the time the invention was made to include means for encrypting an entire buffer as discussed by Clark, to enable the encryption to one of the plurality of inbound queues to provide an encrypted inbound queue to the outbound controller for transmission, further processing the encrypted inbound queue in the same manner the inbound queue was processed in the above-discussed system/method, motivation as indicated by Clark is utilized in compression algorithms before transmission steps, used to reduce significant overhead associated with the data and reducing delay.

Claim 44, cancelled.

Regarding claim 45, this claim contains limitation(s) substantially the same as those discussed on claims 1, 2 and 4; same rationale of rejection is applicable.

Regarding claim 46-48, this claim contains limitation(s) substantially the same as those discussed on claims 1-2, 4, 10-11 & 18; same rationale of rejection is applicable.

Regarding claim 49-50, the inbound queue stores therein a plurality of packets (Erimli: col 5/lines 11-23), and wherein the encryption box encrypts an entire queue (Clark: col 1/line 34-col 2/line 10).

Regarding claim 51, this claim contains limitation(s) substantially the same as those discussed on claims. 4, 10, 11 and 22; same rationale of rejection is applicable.

Regarding claim 52, this claim contains limitation(s) substantially the same as those discussed on claim 1; same rationale of rejection is applicable.

Regarding claim 53, this claim comprises the apparatus, i.e. the computer-readable medium storing thereon computer-readable instructions for performing the method claims 1, 10, 19, and apparatus claims 20, 28, 37-38, & 43; same rationale of rejection is applicable.

Regarding clam 54, this claim comprises the apparatus, for routing (forwarding) a packet in a router of claims 1, 10, 19-20, 28, 37-38 & 43, including the means for performing functions thereof; same rationale of rejection is applicable.

7.   Response to Applicant's arguments filed on 03/13/03 directed to the claim limitation(s) as amended is moot in view of new grounds of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prieto, B. whose telephone number is (703) 305-0750. The Examiner can normally be reached on Monday-Friday from 6:00 to 3:30 p.m. If attempts to reach the examiner by telephone are unsuccessful, the Examiner's Supervisor, Mark R. Powell can be reached on (703) 305-9703. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-6606. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3800/4700.

Any response to this action should be mailed to:
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